

## CAREER SUMMARY

Professor Mark Burry has published internationally on two main themes: the life and work of the architect Antoni Gaudí in Barcelona, and putting theory into practice with regard to ‘challenging’ architecture; he has also published widely on broader issues of design, construction and the use of computers in design theory and practice. As consultant architect to the Temple Sagrada Família since 1979, Mark Burry has been a key member within the local design team based on site in Barcelona, untangling the mysteries of Gaudí’s compositional strategies for his greatest work, especially those coming from his later years, the implications of which are only now becoming fully apparent as they are resolved for building purposes. On February 18 2004, in recognition of his contribution to this project, Professor Burry was given the prestigious award ... ‘Diploma i la insígnia a l’acadèmic corresponent’ and the title *Senyor Il·lustre* by the Reial Acadèmia Catalana de Belles Arts de Sant Jordi. In May 2006 Mark was awarded an Australian Research Council Federation Fellowship and he was recently the recipient of the USA Association for Computer Aided Design in Architecture (ACADIA) Award for Innovative Research.

Professor Burry is director of RMIT’s state-of-the-art Spatial Information Architecture Laboratory (SIAL), which has been established as a holistic transdisciplinary research environment dedicated to almost all aspects of contemporary spatial design activity. The laboratory focuses on colocated design research and undergraduate and postgraduate teaching with associated advanced computer applications and the rapid prototyping of ideas. The laboratory has a design-practice emphasis and acts as a creative think-tank accessible to both local and international practices, including ARUP in Melbourne and London, dECOi in Paris and Gehry Partners in Los Angeles.

Professor Burry is the founding Director of RMIT University’s new research initiative, the Design Institute. The Institute facilitates *User led design leading to new understandings, innovative products and enhanced performance and well-being*. The Design Institute is funding five major research projects and seeding a number of smaller projects. The research program responds to focussed scenarios that cross RMIT disciplines from aeronautical engineering to fashion and from landscape architecture to applied communications. This challenges traditional design methodologies through an outcome focus and leads to new transdisciplinary ways of working and innovative real and virtual design solutions. Initial research projects are: *Customising Space, Rapid Manufacture, Intervention through Art, Geoplaced Knowledges* and *Urban Liveability*.

The Design Institute projects will result in refereed articles and books, programs, studies, products and keynote conference presentations. The event program will include national and international lectures, symposia, exhibitions and sound performances engaging with the RMIT community and extending to the external design sector and general public. Both research and event partnerships with local, national and international education, industry and government individuals and sectors will characterise the program. The 2008 budget is \$1.2m.

In 2006 Professor Burry was awarded an Australian Research Council Federation Fellowship, one of Australia’s most prestigious Fellowships, in acknowledgment of his international leadership in the field of ‘complex architecture and convergent design’. Up to 25 of these awards are made annually for a five year period. The majority of these grants are awarded to people in the science and technology areas, with just one or two awarded to people in the creative arts and humanities disciplines.

## **FULL CURRICULUM VITAE**

### **PROFESSOR MARK BURRY**

#### **DATE OF BIRTH**

24 February 1957, Christchurch, New Zealand

#### **ADDRESS**

RMIT University  
Spatial Information Architecture Laboratory.  
GPO Box 2476  
Building 9, Level 2  
Melbourne 3001  
Tel: + 61 3 9925 8331 Fax: + 61 3 9925 3460  
E-mail: mburry@rmit.edu.au

#### **NATIONALITY**

New Zealand (UK Citizenship, Australian Citizenship)

#### **FORMAL EDUCATION**

University of Cambridge, UK

- BA in Architecture (RIBA Part I) 1979
- Diploma in Architecture (RIBA Part II) 1982
- RIBA Part III 1984
- MA 1989

#### **CURRENT POSITION (COMMENCED JULY 2001)**

Professor (Chair in Innovation: Spatial Information Architecture)  
Director, Spatial Information Architecture Laboratory  
Director, Design Research Institute

#### **PROFESSIONAL REGISTRATION**

- Currently registered architect in New Zealand and Australia (NZIA, RAIA).
- Previously registered in England and Scotland (RIBA, RIAS).

#### **RELEVANT TEACHING EXPERIENCE:**

- Postgraduate supervision (currently 16PhD, 3 Masters)
- Group coordinator final year design project (5<sup>th</sup> year)
- Studio elective supervisor for senior design students

#### **PARTICIPATION IN UNIVERSITY ADMINISTRATION**

I serve on or have recently served on the following Committees and Boards:

##### **University:**

- Research & Innovation Senior Management Committee
- I-Cubed Steering Committee
- Cooperative Research Centres: participation in management committees

#### School:

- School Executive Meeting
- School Research and Development Committee
- Design Hub Management Committee

### INDUSTRY COLLABORATION

- Gehry Technologies Advisory Board member, 2004- current.
- Honorary Board Member, OCEAN Research Network, 2008 - current
- Chair, Research Leaders Group, Australasian CRC for Interaction Design (ACID), 2005 – current.
- Chair, Suburban Communities Group, Australasian CRC for Interaction Design (ACID), 2005 – 2006.
- Chair of the Education Committee, Victorian Chapter of the Royal Australian Institute of Architects, 2003 – 2005.
- Member of the National Education Committee, Royal Australian Institute of Architects, 2003-2005.
- Member of steering group looking at the viability of an Australian extension to the `MediaLab, 2002.
- IAI (International Alliance for Interoperability): Director on Australasian Chapter Board 1998-2000 inclusive.
- Founder of the online design decision support ‘Construction Primer’ (refer to appendix) which provides an information source for design and construction professionals, manufacturers and education.
- Member of steering group for a Cooperative Research Centre in ‘Interaction Design’.

### MAJOR TEACHING GRANTS

- **CUTSD Organisational: 2000 - 2001** (Shared with Adelaide University):  
\$150,000  
Prof Tony Radford, A/Prof. Robert Woodbury (AU), Prof. Mark Burry (DU)  
*“This project will address concerns by immersing beginning students in an environment that models and encourages reflection-in-action, design making and innovative computing”.*
- **Ian Potter Foundation: 2000 - 2001** (shared with Adelaide and Queensland Universities):  
\$120,000  
A/Prof. Robert Woodbury (AU), Prof. Mark Burry, Michael Doherty (QU).  
*“A national digital archive of architectural images to include historical and construction material. The grant (with matching funding from the three universities) will be used to develop the database protocols to allow the seamless management and sharing of digital material from distributed repositories.”*

### MAJOR RESEARCH GRANTS

- **ARC Discovery DP0985070**  
(with Queensland University of Technology)  
*Challenging the inflexibility of the flexible digital model*  
2009 – 2011  
\$568,000
- **ARC Discovery DP0985878**  
*Ethics and aesthetics as criteria for innovation: A design research study of biological art and digital architecture*  
2009 – 2011

\$180,028

- **ARC Linkage 2009 – 2011**  
(with Queensland University of Technology. Industry partner Queensland Government Project ServicesP)  
*Assimilation of architectural and services design in early design modelling.*  
\$402,630
- **Australian Research Council (LIEF) 2007**  
(with University of Melbourne and Deakin University)  
*Advanced Computational Modelling Infrastructure Network in the Built Environment*  
\$170k.
- **Australian Research Council Federation Fellowship 2006 – 2011**  
c.\$1,581,110
- **Australian Research Council (Linkage) 2006 – 2008**  
*Delivering Digital Architecture in Australia*  
Chief Investigator: Professor Mark Burry with Professor Mike Xie.  
c. \$234,000
- **Australian Research Council (Discovery) 2006 – 2008**  
*Acts of electronic negotiation: Overcoming communication barriers to transdisciplinary innovation in design.*  
Chief Investigator: Professor Mark Burry with Associate Professor Lin Padgham and Professor Mike Xie.  
c. \$435,000
- **Australian Research Council (Linkage) 2005 – 2007**  
*Architectural Research Embedded within Practice: The Creation of a Shared Practice-Based Architectural Research and Development Network.*  
Chief Investigator: Professor Mark Burry  
c. \$483,204
- **Australian Research Council (Discovery) 2005 – 2007**  
*Spatial Knowledge and the Built Environment: The Design Implications of Making, Processing and Digitally Prototyping Architectural Models.*  
Chief Investigator: Professor Mark Burry with Professor Peter Downton and Associate Professor Andrea Mina (RMIT) and Professor Michael Ostwald (U Newcastle).  
C. \$248,797
- **Australian Research Council (Discovery) 2003-2005:**  
*Sharing Complex Systems information by challenging the orthodoxies of linear presentation*  
Chief Investigator: Professor Mark Burry with A/P Lin Padgham  
c. \$160,000
- **Australian Research Council (Discovery) 2002-2004:**  
*Ontology-based collaboration in design*  
Chief Investigator: Professor Mark Burry with Prof. Robert Woodbury (Simon Fraser University, BC, Canada) and Dr Robert Amor (Auckland University, NZ)  
c. \$245,000

- **Australian Research Council ('SPIRT') 2001-2003:**  
*New onto old: flexible 3D computer modelling to aid heritage building restoration, recycling and extension*  
Chief Investigator: Professor Mark Burry with Sambit Datta: Deakin University  
Jordi Bonet: Co-ordinating Architect and Director, Sagrada Família Church, Barcelona Spain and Professor Josep Gómez Serrano: ETSAV Universitat Politècnica de Catalunya  
\$66,000
- **Australian Research Council ('Large ARC') 2000-2002:**  
*Investigation into Antoni Gaudí's Final Design Models for the Sagrada Família Church*  
Chief Investigator: Prof Mark Burry – Deakin University  
Associate Investigator: Prof Josep Gomez Serrano – Universitat Politècnica de Catalunya  
\$76,000
- **Spanish Government Research Grant:**  
**\$200,000 over 12 months 2000**  
Co-signatory with the Sagrada Família Church and the Universitat Politècnica de Catalunya to investigate and document Gaudí's design for the church crossing.
- **NESTA (The National Endowment for Science Technology and Arts, UK) £75,000 over 12 months 2000-2001.**  
*Development of Aegis*  
Principal recipient: Mark Goulthorpe, dECOi with Prof. Mark Burry and Mathematician Prof. Keith Ball (UCL)  
(For further details refer to appendix)

## RESEARCH CONTRACTS

### Temple Expiatori de la Sagrada Família

- *Research Contract* (August 2009 – November 2012)
- *Research Contract* (August 2007 – November 2009)
- *Research Contract* (November 2004 – July 2007)
- *Completion of the design of the Sagrada Família Passion Façade (Based on Gaudí's 1917 drawing)* (November 2001 - November 2004): funding Construction Committee, Sagrada Família.
- *Design and documentation of the Central Rose Window for the Sagrada Família Passion Façade* (August 1999 - November 2000): funding Construction Committee, Sagrada Família.
- *Interpretation of the Nave Roof Forms and Synthesis of the Central Crossing of the Sagrada Família* (January 1996 - December 1999): funding: Construction Committee, Sagrada Família.
- *Realisation of the Gaudí's Model for the Sagrada Família Nave Clerestory Using High-end Parametric Solid-modelling* (January 1994 - December 1995) Funding: Construction Committee, Sagrada Família .
- *Interpretation of the Gaudí's Model for the Sagrada Família Nave Clerestory Using High-end Parametric Solid-modelling* (January 1993 - December 1994) Funding: Construction Committee, Sagrada Família.
- *Implementation of CAD in the Technical Office of the Sagrada Família* (September 1992 - January 1993, based on site) Funding: TSF.

- ***Investigation into the Appropriate Use of CAD for the Technical Office of the Sagrada Família*** (January 1990 - July 1992). Funding: Construction Committee, Sagrada Família.

#### **Universitat Politècnica de Catalunya**

- Collaboration with the Universitat Politècnica de Catalunya (Structures Department) with their interpretation of Gaudí's design for the lateral nave roof vaults, central nave vaults, sacristies and crossing (1992 - ongoing).
- Collaboration with preparation of book detailing our collaborative efforts since the publication of the last in 1996 (for publication in 2002).

#### **Espai Gaudí (Museum of Gaudí's work in the attic of *La Pedrera*)**

- Collaboration with the Universitat Politècnica de Catalunya for the production of a full multimedia CD ROM exploration of the derivation of the forms and textures used by Gaudí - 80% Deakin University, 20% UPC (1999-2000).

## **RESEARCH COLLABORATIONS**

### ***Gehry Partners LLB, LA***

I enjoy a formal research collaboration with FOGA which dates back to 1995. My principal contact with FOGA is Jim Glymph, Reg Prentice and Dennis Shelden. We share a common interest in high-end computing as an aid to design, design description, and building realisation. Reg Prentice, my research assistant, is now an associate of the company. RMIT and MIT will be shared a joint studio led by Gehry Partners LLB during first semester 2002.

### **dECOi, Paris**

Member of competition winning team including mathematician (UCL London) and computer programmer (VUW, New Zealand). The large 'art/architecture' installation for the Birmingham Hippodrome in the UK has been commissioned and is currently at the design development stage. A full-scale working prototype is on exhibition at the 2000 Venice Biennale. (August 1999 - ongoing).

dECOi were in a shortlist of four (from an initial one hundred and seventy-eight entries) for a gateway to the South Bank Arts complex in London: I contributed to the final presentation in October 1999. A 1:50 model of the project is also at the 2000 Venice Biennale prepared during my time at Deakin University by one of my postgraduate students.

I am collaborating on other projects in the office.

### ***Fosters and Associates, London***

Engaged as 'Parametric Design Consultant' 1998 (through dECOi Architects, Paris) and instrumental in the migration of office practice from traditional to digitally enhanced design investigation. This collaboration has led to a consolidation of my collaboration with the research arm of Bentley Microsystems in the States through Robert Aish.

### **ARUP, London, Cardiff, and Melbourne**

I have been engaged as consultant to lead the investigation of new architect-engineer working protocols using parametric design tools. The main objective is to relate performance criteria to geometry providing feedback during design.

## EXTERNAL APPOINTMENTS

### **Temple Sagrada Família, Barcelona, Spain**

- Executive Architect and Researcher

### **MIT (USA)**

- Visiting Scholar 2002
- Visiting Professor 2003

### **Deakin University (Australia)**

- Honorary Professor: 2002 – 2005

### **Universitat Politècnica de Catalunya (Barcelona School of Architecture, Spain)**

- Professor Visitant (Investigació): September 1992 - January 1993
- Professor Visitant (Investigació): June 1993
- Professor Visitant (Investigació): December 1993
- Professor Visitant (Investigació): July 1995
- Professor Visitant (Investigació): December 1998

### **GhK Kassel (Germany)**

- Visiting Chair: Design and Computing: Summer Semester 1998
- Visiting Chair: Design and Computing: Summer Semester 1999

### **Hong Kong Polytechnic University**

- Departmental Academic Advisor (1999)
- Departmental Academic Advisor (2000)
- Departmental Academic Advisor (2001)

### **Liverpool University (UK)**

- Visiting Professor 2000-2010

### **University of Newcastle (Australia)**

- Conjoint Professor, School of Architecture and Built Environment 2005-2008

### **Victoria University Wellington (New Zealand)**

- Professorial Research Fellow, Faculty of Architecture and Design, Victoria University Wellington, 2006 – 2009

### **University of East London (UK)**

- External Examiner, Architecture Field Board (2007 – 2011)

### **CITA (Centre for Information Technology and Architecture, Royal Academy of Fine Arts, School of Architecture, (Denmark)**

- Velux Visiting Professorship (2009 – 2011)

Advisory Board Member, Gehry Technologies, Los Angeles, USA (2004 - ongoing)

Member of Australian Research Council College of Experts (2004 – 2007)

Member of the Prime Minister's Science, Engineering and Innovation (PMSEIC) Council (Working Group examining the role of creativity in the innovation economy) (2005)

Member of International Scientific Advisory committee of the 1<sup>st</sup> International conference on Digital Architecture, Seoul, Korea, 2006.

Member of International Scientific Advisory Committee for the GameSetandMatch II Conference 2006: On Computer Games, Advanced Geometries and Digital Technologies.

Vice-chair, The Second International conference on Design Computing and Cognition (DCC '06).

Appointment to the CHASS (Council for the Humanities, Arts & Social Sciences) RQF Working Party 2007

CHASS representative on the 2007 DEST Creative Arts, Design and Built Environment Panel.

Member of Editorial Board of Architectural Design (premier international architecture and design journal)

Committee Member, Pervasive 2008 Conference, Sydney, Australia.

Member Victoria University Wellington Architecture Academic Review Panel 2009.

Member of the Built Information Modelling Working Group, formed by the Department of Innovation, Industry, Science and Research, 2009

## **SYMPOSIA**

Trans-disciplinary research and practice - Designing solutions to wicked problems – Co-hosted with Dr. Terry Cutler of Cutler & Company, Melbourne Town Hall, 9 & 10 November, 2009

## **AWARDS**

CHASA Award 1995

Academician: 'Diploma I la insgnia a l'acadèmic corresponent' and the title *Senyor Il. Llustre* by la Reial Acadèmia Catalana de Belles Arts de Sant Jordi. February 2004.

Committee for Melbourne Achiever Award (Creative Melbourne), October 2004.

RMIT Vice-Chancellor's Award for Research Excellence 2005.

ARC Federation Fellowship, 2006 - 2011

2006 ACADIA Award for Innovative Research awarded by the Executive of the Association for Computer-Aided Design in Architecture, at the 2006 ACADIA Conference held in Louisville, Kentucky, 12-15 October 2006.

## **PRIVATE PRACTICE**

Partner in *Burry & Burry Architects* in New Zealand 1990-1997

Small public work, domestic projects, consultancy and regular competition entrants.

Projects included a remodelling and extension of school (\$850 k), rural houses in adobe and in masonry and several house alterations (featured in 'Architecture New Zealand').

Self-build & Design and Build

- 1985-88 major renovation of derelict granite cottage into home/work base to provide contemporary comfort standards within the context of a strong vernacular archetype.
- Partner in Design & Build company '*Ginkgo Designs*' in London (1980-83).

## SELECTED PUBLICATIONS

### BOOKS AND MONOGRAPHS

#### Books and monographs

- Burry, Coll, Goméz, *Sagrada Família: XXI: Gaudí ara/ahora/now*, Ediciones Universitat Politècnica de Catalunya, Barcelona, Spain, June 2008. 196 pp.
- Burry, M.C., *Gaudí Unseen: Completing the Sagrada Família*, Jovis Verlag GmbH, Berlin, 2007, 160pp.
- Bonet, J, (*Burry, M.C.* trans *L'Últim Gaudí*), *The Essential Gaudí*, Encyclopaedia Catalana, Barcelona Spain, May 2001 (new edition in English only).
- Bonet, J, (*Burry, M.C.* trans), *L'Últim Gaudí*, Encyclopaedia Catalana, Barcelona Spain, May 2000.
- Burry, Coll, Goméz, Melero, *La Sagrada Família: de Gaudí al CAD*, Ediciones Universitat Politècnica de Catalunya, Barcelona, Spain, 1996.
- Burry, M.C., *The Expiatory Church of the Sagrada Família*, Phaidon Press Ltd, London UK, 1993.

#### Book Chapters

- Burry, M.C., *Towards an Architecture*, in Decoi Architects 'From Autoplastic to Alloplastic, Editions Hyx, 2008. ISBN: 97829103851887
- Burry, M.C., *That Difficult Nexus*, in AADRL Documents 2 DRL Ten: A Design Research Compendium (Publication Coordinator Tom Verebes), AA Publications, 2008.
- Burry, M.C., *The Persistence of Paper*, in Volume (ed. Arjen Oosterman), Archis #1 2008.
- Burry, M.C., *Room for Reading*, in Volume (ed. Arjen Oosterman), Archis #1 2008.
- Burry, M.C., *Beyond the algorithm: seeking differentiated structures through alternative computational and haptic design processes*, in Morpho-Ecologies. Towards Heterogeneous Space in Architectural Design (ed. Michael Hensel and Achim Menges), AA Publications February 2007.
- Burry, M.C., *Gaudí*, in New Makers of Modern Culture (ed. Justin Wintle), Volume 1, Routledge, 2007.
- Burry, M.C., *Gaudí. The Innovator*, Mathematics and Culture IV (ed. Michele Emmer), Springer-Verlag (English edition), 2007.
- Burry, M.C., *What Can the Architect Antoni Gaudí – who died in 1926 – tell us about the World of Digital Design*, Keynote address in European Network of Heads of Schools of Architecture (ENHSA), EAAE Transactions on Architectural Education No 29, (re)searching and redefining the content and methods of construction teaching in the new digital era, 2005. Ed. Maria Voyatzaki.
- Burry, M.C., *Homo Faber*, in Architectural Design "Design through Making", Vol 75, No 4, July/August 2005, pp30-37.

- Burry, M.C., *Gaudí. The Innovator*, Mathematics and Culture IV (ed. Michele Emmer), Springer-Verlag Italia (Italian edition), 2004.
- Burry, M.C., *Notes on the Non Standard: numerical and architectural production tomorrow*, in Non Standard Architectures, Centre Georges Pompidou, Paris, 2003, pp042-047.
- Burry, M.C., *Between Surface and Substance*, in Architectural Design “Surface Consciousness”, Vol 73 No 2 Mar/Apr 2003, Wiley-Academy, pp 8-19.
- Burry, M.C., *Blurring the Lines: Mediating between analogue and digital skill sets*, in Architectural Design Vol 73 No 2 Mar/Apr 2003, Wiley-Academy, pp 110-118.
- Burry, M.C., *Between Intuition and Process: Parametric Design and Rapid Prototyping*, in Architecture in the Digital Age (ed. Branko Kolarevic) Spon Press, London, 2003 pp148-162.
- Burry, M.C., *Gaudí and Information Technology: an architecture of real absence and virtual presence* in *Gaudí 2002. Miscel·lània*, Editorial Planeta, Barcelona, 2002, pp 200-215.
- Burry, M. *Liquid Stone*, Architecturanimation, Col·legi d'Arquitectes de Catalunya, Barcelona 2003 pp 342-363.
- Burry, M.C., Beyond *Animation*, in Architecture + Animation Architectural Design Vol 71, No 2, Academy Editions, London April 2001.
- Burry, M.C., Dunlop, G.M., *Paramorph I*, in *Cyberspace the world of digital architecture*, The Images Publishing Group Pty Ltd, 2000, pp07-09, pp 134-139.
- Burry, M.C., *The Expiatory Church of the Sagrada Família*, in ‘City Icons’ reprint of 1993 monograph Phaidon Press Ltd, London UK, 1999, 60 pp.
- Burry, M.C., *Paramorph: Anti-Accident Methodologies*, Architectural Design issue on ‘Hypersurfaces 2’, Academy Editions, London, September 1999, pp78-83.
- Burry, M., C., *Gaudí, Teratology and Kinship*, Architectural Design issue on ‘Hypersurfaces’, Academy Editions, London April 1998 p38-43.
- Burry, M.C., *Towards New Design Conventions*, ed Asanowicz & Jakimowicz (Chapter title: *From Real to Virtual*) Technical University of Bialystok, Poland 1997.
- Burry, M.C., *Approaches to Computer Aided Architectural Composition*, ed Asanowicz & Jakimowicz (Chapter title: *Generation and Degeneration*) Technical University of Bialystok, Poland 1996.

### Refereed Journals

- Gómez-Serrano, J, Espel, R, Grima, R, Burry, M.C., ‘Evolution of the Formwork Used in the Temple of the Sagrada Família, International Journal of Architectural Heritage, Volume 3, Issue 2, April 2009, pp 93-109.
- X. Huang, Y.M. Xie, and M.C. Burry, ‘Advantages of bi-directional evolutionary structural optimization (BESO) over evolutionary structural optimization (ESO)’, Advances in Structural Engineering, 10(6), pp 727-737, 2007.
- Huang, X, Xie, Y.M., Burry, M.C., *A New Algorithm for Bi-Directional Evolutionary Structural Optimization*, Japan Society of Mechanical Engineers International Journal, Series C, vol. 49, No 4, 2006.
- Burry, J and Burry, M.C., *Gaudí and CAD*, ITcon Vol. 11, Special Issue The Effects of CAD on Building Form and Design Quality , pg. 437-446, <http://www.itcon.org/2006/32>.
- Huang, X., Xie, Y.M., Burry, M.C., Tang, J., Felicetti, P. *Evolutionary Stiffness Optimisation of Non-Linear Structures*, Structural and Multidisciplinary Optimization, 2005.
- Burry, J, Felicetti, P., Tang, J., Burry, M., Xie, Y.M., *Dynamical structural modeling A collaborative design exploration*, International Journal of Architectural Computing vol. 3 - no. 1,2005, 27-42 <http://cuminacad.scix.net/cgi-bin/works/Show?IJAC20053102>.

- Burry, M.C., *CAD/CAM and Human Factors*, Automation in Construction, March 2002.
- Burry, M.C., Coulson, J., Preston, J., Rutherford, E., *Computer-Aided Design Decision Support: Interfacing Knowledge and Information*, Automation in Construction, January 2000.
- Burry, Gómez Serrano, Coll, *A Mathematical Framework to Gaudí's Use of Geometry*, Journal of the International Association of Shell and Spatial Structures (Vol 38 no1), July 1997.
- Burry, M.C., *Parametric Design and the Sagrada Família*, Architecture Research Quarterly, UK, 1996.
- Burry, Whybrew, Struthers, *Cathedrals, Concrete Profiles, and CAD/CAM*, IPENZ Transactions, Vol 20, No 1, July 1993.

## Conferences

- Toth, B., Fernando, R., Salim, F. D., Drogemuller, R., Burry, J., Burry, M., Frazer, J., (2009). *Modelling Sustainable and Optimal Solutions for Building Services Integration in Early Architectural Design: Confronting the software and professional interoperability deficit*, Cumulus 38° South 2009 Proceedings of the Cumulus Conference Swinburne University of Technology and RMIT University, Melbourne, Australia, 12-14 November 2009. Edited by L. Fennessy, R. Kerr, G. Melles, C. Thong and E. Wright. Melbourne, Australia. ISBN 978-1-921426-52-0
- Burry, J., and Burry, M., *The Bonds of Spatial Freedom: working around the constraints of parametric design*, eCAADe 2008 Conference, University College of Antwerpen, Belgium, 17-20 September 2008.
- Nicholas, P., Bahoric, J., Ormston, G., Bowtell, P. and Burry, M.C., *No Place for Drones, Predicting the Future*, 25th eCAADe Conference Proceedings, Frankfurt am Main, Germany, 26-29 September 2007, pp. 117-123.
- Holzer, D., Tang, J., Xie, Y.M. and Burry, M.C., *Evolutionary structural optimisation and parametric design in transdisciplinary collaboration*, Proceedings of the 4<sup>th</sup> International Structural Engineering and Construction Conference ISEC-4, 26-28 September 2007, Melbourne, Australia (ed. M Xie and I Patnaikuni), Taylor and Francis Publishers.
- Holzer, D., Burry, M.C. and Hough, R., *Linking parametric design and structural analysis to foster transdisciplinary design collaboration*, CAADRIA 2007 [Proceedings of the 12th International Conference on Computer Aided Architectural Design Research in Asia] Nanjing, China) 19-21 April 2007, pp. 423-431.
- Nicholas, P. and Burry, M.C., *Import As: Interpretation and Precision Tools*, CAADRIA 2007 [Proceedings of the 12th International Conference on Computer Aided Architectural Design Research in Asia] Nanjing, China) 19-21 April 2007, pp. 249-257.
- Burry, J. and Burry, M.B., *Sharing hidden power - Communicating latency in digital models, Communicating Space(s)*, 24th eCAADe Conference Proceedings / ISBN 0-9541183-5-9] Volos (Greece) 6-9 September 2006, pp. 786-793.
- Nelson, A., Maher, A., Burry M. (2006) *The 'Discipline' in Interdisciplinary and Transdisciplinary Research* presented at the International Conference on Interdisciplinary Social Sciences; University of the Aegean, Greece, 18-21 July 2006.
- Maher, A., Nelson, A and Burry, M.C., *Embedding Research within the Context of Architectural Practice* at Research into Practice Conference, University of Hertfordshire, UK, July 2006.
- Burry, M., *Digitally sponsored convergence of Design Education, Research and Practice*, Computer Aided Architectural Design Futures 2005, ed. B Martens and A Brown, Springer, The Netherlands, July 2005. ISBN\_10 1 4020-3460-1.

- Burry, J., Burrow, A., Amor, R. and Burry, M, *Shared Design Space*, Computer Aided architectural Design Futures 2005, ed. B Martens and A Brown, Springer, The Netherlands, July 2005. ISBN\_10 1 4020-3460-1.
- Holzer, D., Tang, J., Xie, M. and Burry, M, *Design Using Evolutionary Optimisation and Associative Geometry*, CAAD Futures 2005 Learning from the Past, B Martens and A Brown, Springer, The Netherlands, July 2005.
- Burry J., Burrow,A., Burry, M., (2005) *Upholding the Poetic in Design Collaboration*, CAADRIA 2005 [Proceedings of the 10th International Conference on Computer Aided Architectural Design Research in Asia / ISBN 89-7141-648-3] New Delhi (India) 28-30 April 2005, vol. 1, pp. 288-299 [http://cumincad.scix.net/cgi-bin/works/Show?caadria2005\\_a\\_7b\\_d](http://cumincad.scix.net/cgi-bin/works/Show?caadria2005_a_7b_d).
- Burry, M., *Convergent Design*, Futureground, Design Research Society International conference, Volume 2: Proceedings, ed. J Redmond, D Durling and A de Bono, November 2004.
- Burry, J, Burry M, *Collaboration Mechanisms in Design: Drawing on Discourse Analysis*, Limits: proceedings from the 21st Annual Conference of the Society of the Architectural Historians Australia and New Zealand, Melbourne 2004, ed Edquist, H. & Frichot, Hélène, pp 82-87.
- Burry, J., Felicetti, P., Tang, J., Burry, M. and Xie, M. (2004) *Dynamical Structural Modeling - A Collaborative Design Exploration*, Architecture in the Network Society [22nd eCAADe Conference Proceedings / ISBN 0-9541183-2-4] Copenhagen (Denmark) 15-18 September 2004, pp. 312-317 [http://cumincad.scix.net/cgi-bin/works/Show?2004\\_312](http://cumincad.scix.net/cgi-bin/works/Show?2004_312).
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- More, G., Burry, M, *Multidimensional Presentation Environments with Integrated Intelligent Agents*, acadia22--conference2003, Ball State University, Indianapolis, USA. 23-26 October 2003.
- Maher, A., Burry, M, *The Parametric Bridge: connecting digital design techniques in architecture and engineering*, acadia22--conference2003, Ball State University, Indianapolis, USA, 23-26 October 2003.
- Burry, J., Maher, A., Taylor, M., Burry, M., *Educational experiments in design project sublimation*, The second International Conference of the Association of Architecture Schools of Australasia, Melbourne University, Australia., 28-30 September 2003.
- Maher, A., Wood, P., Burry, M, *Building Blobs: Embedding Research in Practice*, 22<sup>nd</sup> International eCAADe Conference, Graz University of Technology, Austria, 17-20 September 2003.
- Burrow, A., Burry, J., More, G., Tengono, Y., Burry, M. *Visual and Sonic Communication Representations to Support Design Interaction*, the 8<sup>th</sup> CAADRIA conference 2003, Rangsit University in Thailand 18-20 October 2003.
- Burry, J., Burry, M. *Introducing Simple Arithmetic and Geometric series in complex parametric modelling*, The Joint Meeting of ISAMA 2003 and the 6<sup>th</sup> Annual Bridges Conference at the University of Granada in Spain 23-25 July 2003.
- Burry, J., Burry, M. *Fat Design, Lean Construction Management*, 28<sup>th</sup> Annual AUBEA conference, Deakin University, Australia 9-11 July 2003.
- More, G., Harvey, L., Moloney, J., Burry, M. *Implementing Nonlinear Sound Strategies within Spatial Design: Learning sound and spatial design within a collaborative virtual environment*, Melbourne DAC, the 5<sup>th</sup> International Digital Arts and Culture Conference, May 19-23, 2003.
- Burry, M. *After Gaudí: Geometry in the service of ideas*, Convegno “Matematica e Cultura 2003, Venice, Italy 28<sup>th</sup> and 29<sup>th</sup> March 2003 (invited speaker).

- Pettit, C., & Cartwright, W. (Geospatial Science, RMIT University) More, G., Burry, M. (Spatial Information Architecture, RMIT University), *Synthesizing Visual and Acoustic City information for Understanding and Navigation*, Geocart'2003 National Cartographic Conference 2003, Taupo, New Zealand. 12-14 February 2003.
- Burry, M. *Liquid Stone*, Architecture + Animation, COAC 18-21 June 2002 (Invited speaker).
- Burry, M. *Parametric Design as Mediator between Intuition and Process*, Designing and Manufacturing Architecture in the Digital Age, University of Pennsylvania, USA March 22-23, 2001 (Invited speaker).
- Burry, M. *Parametric Design and the Sagrada Família*, Digital Tectonics, University of Bath, 2 March 2002 (Invited speaker).
- Burry, M. *Parametric Design and the Sagrada Família Passion Façade*, 2002 Bentley International User Conference May 19 - 23, 2002, Atlantic City, N.J. USA (Invited speaker).
- Amor, R., Burry, J., Fischer, T., Burry, M., Woodbury, R., Ontology *Specification for Design Communication*. ANZAScA conference, Deakin University, November 2002.
- More/ Harvey/ Burry, *Understanding Spatial Information with Integrated 3D Visual and Aural Design Applications*, ACADIA 2002, California, USA, October 2002.
- Burry, J., Dunlop, G., Burry, M., *Sharing Thoughts, Reflection as Architectural Design, How We Reflect Together*. Additions SAHANZ conference, University of Queensland, October 2002.
- Maher, A., Burry, M., *Hybridized Measurement: Non-Typical Uses For Digital Photogrammetry*, ECAADE 2002, Warsaw, Poland, September 2002.
- Fischer, T, Herr, CM, Burry, MC & Frazer, JH, *Tangible Interfaces to Explain Gaudi's Use of Ruled-Surface Geometries: interactive systems design for haptic, non-verbal learning*, CAADRIA 2002, KL, Malaysia, April 2002.
- Burry, M.C., Burry, J.R., Dunlop, G.M., Maher A., & Anson S., *Simple Computer Programming to Enhance Spatial Cognition in Architecture and Design*, Presented at SIRC 2001 – The 13th Annual Colloquium of the Spatial Information Research Centre.
- Burry, J. R., Dunlop, G.M., Maher A., Burry M. B., *Drawing Together Euclidean and Topological Threads* - Presented at SIRC 2001 – The 13th Annual Colloquium of the Spatial Information Research Centre University of Otago, Dunedin, New Zealand December 2nd–5th 2001.
- Burry, M.C., Burry, J.R., Faulí, J.' *Sagrada Família Rosassa: Global Computer-Aided Dialogue between Designer and Craftsperson (Overcoming Differences in Age, Time and Distance)* University at Buffalo, State University of New York, Buffalo, New York, USA October 11-14, 2001.
- Burry, M.C., Goulthorpe, M., *Aegis Hyposurface ©: The Bordering of University and Practice* University at Buffalo, State University of New York, Buffalo, New York, USA October 11-14, 2001.
- Woodbury, R.F.; Wyeld, T.G.; Shannon, S.J.; Roberts, I.W.; Radford, A.; Burry, M., Skates, H.; Ham, J.; Datta, S., *The Summer Games*, ECAADE 2001, Helsinki, 29-31 August 2001.
- Burry, M.C., Burry J.R., Dunlop G.M. *Haptic Hyperbolic Paraboloid Reality* Third International Mathematics and Design Conference, Deakin University, Australia, July 3-5 2001.
- Burry, M.C., Datta, S., Anson, S., *Introductory Computer Programming as a Means for Extending Spatial and Temporal Understanding*, ACADIA, Washinton, USA October 2000.
- Simondetti, A., Cecato, C., Burry, M.C., *Mass Customisation* Introductory Computer Programming as a Means for Extending Spatial and Temporal Understanding, ACADIA, Washington, USA October 2000.

- Fischer, T., Burry, M., Woodbury, R., *Object-Oriented Modelling Using XML in Computer-aided Design and Architectural Education: the Problem of Interoperability Exemplified in Two Case Studies*, CAADRIA, Singapore, May 2000.
- Newton, C., Burry, M., *Building Architecture using Sticks, Stones and Visualisation*, CAADRIA, Singapore, May 2000.
- Burry, M.C.,) *Barcelona: Museum for Gaudí - al C tedra Gaud  / Espai Gaud  / Sagrada Fam lia Church*, Keynote for the International Museum Director's Forum, National Museum of History, Taiwan April 26-29, 2000 (on behalf of Prof. Juan Bassegoda Nonell, Real C tedra Gaud  / Universitat Polit cnica de Catalunya, Jordi Bonet Armengol, Coordinating Architect and Director Sagrada Fam lia Church, Jordi Faul  i Oller, Coordinator Sagrada Fam lia Church Museum, Daniel Giralt-Miracle, Director Espai Gaud .
- More, G.M., Burry, M.C., *Instants and Duration: Between the Architectural Animate and Inanimate*, Digital Creativity, University of Greenwich, London January 2000.
- Burry, M.C., Dawson, T., Woodbury, R., *Learning about Architecture with the Computer, and Learning about the Computer in Architecture*, ECAADE, Liverpool UK, 1999.
- Burry, M.C., Anson, S. *Learning About Space and Time in Architecture using Low-level Computer Programming*, ISMA, San Sebastian, Spain, June 1995Burry, M.C., *Handcraft and Machine Metaphysics*, ECAADE-EAAE, Belgium, November 1998.
- Burry, Coll, Dunlop, G mez, Wood, *Boolean Operations and Architectural Form Finding*, Mathematics and Design, San Sebastian, Spain June 1998.
- Burry, More, *Representation, Realism and Computer Generated Architectural Animation*, Cyber-real, Technical University of Bialystok, Poland 1998.
- Burry, Murray, *Architectural Design Based on Parametric Variation and Associative Geometry*, ECAADE, Vienna, September 1997.
- Burry, Popovic, *Parametrically Controlled Resolution for Reciprocal Frame Design, Description and Manufacture*, IASS (Structural Morphology Group), Nottingham, UK, August 1997.
- Burry, M.C., *Narrowing the Gap between CAAD and Computer Programming*, CAADRIA '97, Taiwan April 1997.
- Burry, M.C., Smithers, *Networked Based Decision Support for Building Design*, EuropIA'97, Edinburgh April 1997.
- Burry, M.C., Dawson, *The Continuing Dichotomy: Practice vs Education*, ECAADE, Lund, Sweden, September 1996.
- Burry, M.C., Struthers, Whybrew, Concrete, *Cathedrals and CAD/CAM*, IPENZ, Auckland NZ, 1993.
- Burry, M.C., Coll, J., Gomez, Melero,, *Ruled-surfaces, CAD/CAM and the Continuing Construction of the Temple Expiatori de la Sagrada Fam lia*, ARECDAO (CONSTRUMAT), Barcelona, March 1993.
- Burry, M.C., Whybrew, Struthers, *Cathedrals, Concrete Profiles, and CAD/CAM*, IPENZ Transactions, Vol 20, No 1, July 1993.
- Burry, M.C., Whybrew, 1992, *The Challenge of Ruled-surface Geometries and Precast Concrete Component Manufacture*, Third International Symposium on Noteworthy Applications in Concrete Prefabrication, Singapore, July.
- Burry, M.C., *Gaud : The Making of the Sagrada Fam lia*, Architects' Journal, London UK, April 1992.
- Burry, M.C., *Building Techniques*, Architects' Journal, London UK, April 1992.
- Burry, Whybrew, *The Challenge of Ruled-surface Geometries and Precast Concrete Component Manufacture*, Third International Symposium on Noteworthy Applications in Concrete Prefabrication, Singapore, July 1992.
- -Burry, M.C., *Gaud , Ruskin and Nelson Cathedral*, ANZAScA, Sydney Australia, 1990.

- Burry, M.C., *Emotional and Subjective Limitations in Environmental Design*, ANZAScA, Hobart, Tasmania, 1989.

## FOREWORDS

- Burry, M.C., Foreword to the Proceedings: **Third International Mathematics and Design Conference**, Deakin University, Australia, 2001.
- Burry, M.C., *Introduction: Cyberspace the world of digital architecture*, The Images Publishing Group Pty Ltd, 2000.
- Walden, R., *Finnish Harvest*, Otava Press, Helsinki, 1998 (Foreword).

## REVIEWS

- Burry, M.C., *Brodsky and Utkin*, Art New Zealand, (Spring 1992) 2000 words
- Burry, Taylor, *Porirua Walkways*, Architecture New Zealand, (January 1996)

## REPORTS

- Burry, M C, *The Intersection of Ruled-surface Geometries Using Computer Aided Techniques*, to the Junta Constructora de la Sagrada Família, Barcelona, June 1992, A3 format 70 pages
- Burry, M C, *Finestral Nau Central: Interpretació de la Maqueta de Gaudí (Primer Informe)*, to the Junta Constructora de la Sagrada Família, Barcelona, June 1993, A3 format 60 pages
- Burry, M C, *Finestral Nau Central: Interpretació de la Maqueta de Gaudí (Segon Informe)*, to the Junta Constructora de la Sagrada Família, Barcelona, June 1994, A3 format, 4 vols 300 pages total
- Burry, M C, *Finestral Nau Central: Interpretació de la Maqueta de Gaudí (Tercer Informe)*, to the Junta Constructora de la Sagrada Família, Barcelona, June 1995, A3 format 200 pages
- Burry, M C, *Finestral Nau Central: Interpretació de la Maqueta de Gaudí (Ultim Informe)*, to the Junta Constructora de la Sagrada Família, Barcelona, December 2003, A3 format 60 pages
- Burry, M C, *Coberetes de la Nau Central: Interpretació de la Maqueta de Gaudí (Primer Informe)*, to the Junta Constructora de la Sagrada Família, Barcelona, December 2003, A3 format 60 pages
- Burry, M C, *La Rosassa de la Façana de la Passió: Interpretació de la Maqueta de Gaudí (Primer Informe)*, to the Junta Constructora de la Sagrada Família, Barcelona, December 2002, A3 format 120 pages

## CONFERENCES ATTENDED SINCE 1966

- ACADIA, Tucson, Arizona USA November 1996
- EuropIA'97, Edinburgh, UK, April 1997
- AVOCAAD, Brussels, Belgium, April 1997
- CAADRIA, Taiwan, April 1997
- STREMAH'97, San Sebastian, Spain June 1997
- ECAADE, Vienna, September 1997
- Mathematics & Design, San Sebastian, Spain 1998
- ECAADE\_EAAE, Leuven, Belgium November 1998
- Europa'98, Paris, December 1998
- ISAMA'99, San Sebastian, Spain June 1999
- ECAADE, Liverpool, UK, September 1999

- Generative Art 99, Milan. Italy, December 1999
- Greenwich 2000 International Symposium, Dartford, U.K. January 2000
- International Museum Director's Forum, National Museum of History, Taiwan April, 2000
- CAADRIA 2000, Singapore, May 2000
- ACADIA 2000, Washington, October 2000
- CAID / CACD, Hong Kong, November 2000
- Third International Mathematics and Design Conference, Deakin University, Australia, July 2001
- ECAADE 2001, Helsinki, August 2001
- New York, Buffalo, New York, USA, October 2001
- Designing and Manufacturing Architecture in the Digital Age, University of Pennsylvania, USA, March 2001
- Digital Tectonics, University of Bath, March 2002
- 2002 Bentley International User Conference May, 2002, Atlantic City N.J., USA
- Technological Innovation in Design and Construction 2003, The British Museum, January 2003
- Matematica & Cultura conference, Venice, Italy, March 2003
- Bentley International Users Conference, May 2003
- architecturanimation a+a conference, Barcelona, Spain, June 2003
- eCAADe, Graz, Austria, September 2003
- Mathematics in the service of architecture, NEXUS, (Tecnologico de Monterrey), Mexico, June 2004
- 'Sensoria', RMIT, July 2004
- Non-Standard Architecture Praxis (MIT), September 2004
- ACADIA (Waterloo University): Keynote, November 2004
- FUTUREGROUND (Monash University): Keynote, November 2004
- RAI 2005 National Conference: Keynote Technology Forum, April 2005
- CAAD Futures 2005, Vienna: Keynote, June 2005
- Differentiated Structures in Nature and Design, AA, London: Keynote, March 2006.
- Research into Practice 2006, University of Hertfordshire, UK. July 2006.
- eCAADe 2006, Volos, Greece, September 2006.
- RAI National Conference, Melbourne, April 2007.
- CtrlShift07, Wellington, New Zealand, July 2007.
- ConnectED, University of New South Wales, July 2007.
- 13<sup>th</sup> International Conference on Virtual Systems and Multimedia (VSMM'07), Brisbane, September 2007.
- ANIMFXNZ 2007, Wellington, New Zealand, November 2007.
- Parametrics/CADCAM Symposium, Royal Academy of Fine Arts, Copenhagen, November 2007.
- International Association for Philosophy and Literature (IAPL) Symposium, Melbourne July 2008. ('The Place of Narrative in the Contemporary Built Environment' session, and also introduced and contributed to the panel of the closing roundtable forum).
- Smart Geometries conference 2009, San Francisco, USA, 2 April.
- Design Thinking -- An Invitational Conference 2009 hosted by Swinburne University, Torquay, Victoria 22 November

## KEYNOTES

2009

### International

- **Keynote address**, Smart Geometries conference 2009, San Francisco, USA, 2 April.
- *Convergent design and contemporary transdisciplinary design research dilemmas: the status of the idea, authorship, ownership, curatorship and leadership within creative collaborations*, Third Nordic Design Research Conference, NORDES'09: Engaging Artefacts at the School of Architecture and Design, Oslo, Norway, 31 August
- **Keynote address: 'Barcelona: Creative City Precincts'**, Victoria University School of Architecture Crit week, Wellington, New Zealand, 29 October 2009
- Keynote address: *Untangling the mysteries – Temple Sagrada Família*, Institute of Architects NZIA Napier Conference, Hawkes Bay, New Zealand, 31 October 2009

### National

- *After Gaudí: lessons for complex and convergent design research* at Queensland University of Technology School of Design ARC-2009 Undergraduate Architectural Research Conference, 12 June 2009.
- *Creative approaches to precincts - Park Güell and the Barcelona precinct making of Antonio Gaudí*, University of Queensland's PACE Inaugural International Symposium, University of Queensland, 25 July 2009.
- *Parametric Design, Associative Geometry*, Bligh Voller Nield Retreat, Sydney, 30 July 2009
- *Supporting the Silos: Trans-disciplinary Design Research as Defender of the Disciplines*, Cumulus 38° South 2009 Conference, Swinburne University of Technology and RMIT University, Melbourne, Australia, 14 November, 2009

2008

### International

- *Architects, engineers and the 3D model*, Opening keynote presentation, 3D Modelling symposium, Universität der Künste Berlin, 6 April 2008.
- *Chasing Gaudí's Hyperboloids*, Keynote presentation, International Society of the Arts, Mathematics and Architecture (ISAMA), Valencia, Spain, 18 June 2008.
- Keynote address Virtual Design Conference, London, UK, 2-3 December 2008.

### National

- Keynote speaker, ACID Symposium, Queensland University of Technology, Brisbane, Australia, 24 October 2008.
- *'The Sagrada Família Church: the challenges of visualising the unfamiliar'*, Keynote speaker ANZAScA Conference, University of Newcastle, Australia, 28 November 2008.
- 'Untangling the mysteries – Temple Sagrada Família' COFFS HARBOUR

2007

### International

- ***Digital Applications and Cultural Heritage: A Dynamic co-evolution***, Keynote presentation at International Conference on Digital Applications in Cultural Heritage 2007 (DACH 2007), National Centre for Research and Preservation of Cultural Properties, Graduate Institute of Architecture at the National Chiao Tung University Taipei. 14 January 2007.
- ***Architectural research in the academy and in practice: resolving some shared dilemmas***, Bartlett University International Lecture Series, 17 January 2007.

#### National (Australia and New Zealand)

- Address to Council for the Humanities, Arts & Social Sciences (CHASS) Workshop, 27 February.
- ***'That's Not Research! Architecture and the Academy'***, Archivision 2007, RAIANational Conference, April 2007.
- Keynote presentation RAIANational Conference, *National Tour; Cross-Over Package*, April 2007.
- ***'Morpho what?'*** Keynote presentation at CtrlShift07, Biennial Pacific Students of Architecture Congress, Wellington, New Zealand, 1-6 July 2007.
- ***'That difficult nexus: creating a meaningful relationship between design education, research and practice'***, ConnectED International Conference on Design Education, Sydney July 2007.
- ***Pencils, wikis and cyber-scribbles***, Keynote presentation 13<sup>th</sup> International Conference on virtual Systems and Multimedia (VSMM'07), Brisbane, 26 September 2007.
- ***Unfreezing the Music: Animation and Antoni Gaudí***, Keynote address, ANIMFXNZ 2007 Symposium, Wellington, 6 November 2007.

#### 2006

##### International

- ***Antoni Gaudí and the status of his drawings and models***, Architectural Association School of Architecture Lecture Series, London, January 2006.
- Canadian Masonry Research Institute Annual Masonry Lecture, University of Manitoba, Winnipeg, Canada, 8 March 2006.
- Canadian Masonry Research Institute Annual Masonry Lecture, University of Calgary, Canada, 9 March 2006.
- ***Beyond the algorithm: differentiated structures through other computational and haptic processes requiring more direct human intervention***, "Differentiated Structures in Nature and Design" Symposium, Architectural Association, London, March 2006.
- ***Gaudí and a fourth dimension through implied animation***, Antoni Gaudí Architecture and Art Exhibition, National Dr. Sun Yat-sen Memorial Hall Taipei, September, 2006
- ***The New Studio***, RMIT School of Architecture and Design Alumni event, PAM, Kuala Lumpur, October 2006.
- Invited lecture ***Innovation in Architecture: The Sagrada Família Case***, at the 10<sup>th</sup> European PLM Forum, IBM and Dassault Systèmes, Paris, November 2006.

##### National (Australia and New Zealand)

- ***Architecture of Concurrent Engineering***, RAIANSW, Tusculum, May 2006.
- Robertson Memorial Lecture, Curtin University, Western Australia, 12 October
- Generative Components Workshop, Bentley Systems, Melbourne, 23 October.

#### 2005

## International

- ***Digitally sponsored convergence of Design Education, Research and Practice***, CAAD Futures 2005 ‘Computer Aided Architectural Design Futures’, July 2005.  
ARC Embedded Practice LP, ARC Linkage AM New onto Old, ARC Complex Systems DP, ARC Ontology DP
- ***Embedding architectural research and learning into post digital practice***, Invited address for Delft ‘National Monuments Day’, Technical University Delft, Holland, September 2005.  
ARC Embedded Practice LP , ARC Linkage AM New onto Old ARC Models DP , ARC TSF – 1<sup>st</sup> DP
- ***Teaching construction in the new digital era***, European Network of Heads of Schools of Architecture (ENHSA), Construction Teachers Workshop, September 2005.  
ARC Embedded Practice LP , ARC Linkage AM New onto Old ARC Models DP , ARC TSF – 1<sup>st</sup> DP
- ***Architectural education and research embedded in practice: post digital opportunities for creative convergence***, Leading European Architects Forum (LEAF) 2005, Barcelona, September 2005.  
ARC Embedded Practice LP ARC Linkage AM New onto Old
- ***Design research, practice, and education: converging disciplines, embedded practice***, Converge ’05, Christchurch, New Zealand, October 2005.  
ARC Embedded Practice LP , ARC Linkage AM New onto Old ARC Models DP , ARC Complex Systems DP, ARC Ontology DP

## National (Australia and New Zealand)

- Keynote session – Technology – Exchange 2005, Royal Australian Institute of Architects (RAIA) National Conference, April 2005.

## 2004

### International

- ***Mathematics in the service of architecture***, NEXUS (Mexico University), June 2004.
- ***From Gaudí to Gehry and Beyond***, Non-Standard Architecture Praxis (MIT): Keynote September 2004.
- ***Paramorph and Gaudí’s Sagrada Família***, Gehry Technologies Architecture and Digital Integration Symposium, London, September 2004.
- ***Fabrication and Human Factors***, ACADIA, Waterloo University, November 2004.

### National (Australia and New Zealand)

- ***After Gaudí: post digital collaboration***, Creating the Collaborative Advantage, Box Hill Institute, Melbourne, June 2004.
- ***Authorship***, States of Mind Design Evolution conference, University of Tasmania, July 2004.
- ***Convergent Design***, FUTUREGROUND, Design Research Society International Conference, November 2004.

### Memorial Lectures

- ***After Gaudí***, David Thistlewood Memorial Lecture - Liverpool University, School of Architecture and Design, February 2004.
- ***After Gaudí – Architecture of Anticipation***. Patricia Coleman Lecture, University of Otago, August 2004

2003

#### International

- *Digital Design*, British Institute of Architectural Technicians annual conference, February 2003.
- *After Gaudí : Geometry in the service of ideas*, Mathematics and Culture (University of Venice), June 2003
- *Gaudí and Dalí*, Keynote address, Fantasy Space: Surrealism + Architecture conference, Whitworth Art Gallery, University of Manchester, September 2003
- *After Gaudí – Architecture of Anticipation*: Keynote Sun Microsystems Annual Client Conference, Barcelona, Spain, September 2003
- *Antoni Gaudí's computational legacy*, Human Centric Computing Languages and Environments conference, Auckland, New Zealand, October 2003.
- Non Standard Architecture Exhibition, Centre Pompidou, Paris, invited speaker at opening conference, December 2003

2002

#### International

- *Designing and Manufacturing Architecture in the Digital Age*, University of Pennsylvania, March 2002.
- *Parametric Design and the Sagrada Família*, Digital Tectonics Conference, University of Bath, March 2002.

#### National

- *Interface between Researchers in University and Practice*, AASA, University of Melbourne, September 2002.

## PUBLIC LECTURES

#### International

- *The Work of Antoni Gaudí*, Robert Gordon School of Architecture, Aberdeen University, Scotland, November 1988.
- *The Sagrada Família Church and Rationalist Constructs*, School of Architecture, Cambridge University, England, November 1990.
- *Gaudí versus the Computer*, Faculty of Architecture, TU Delft, Netherlands, May 1991.
- *The Third State: Architectural Dilemmas within Nations in Decline*, School of Architecture, Turin University, Italy, May 1991.
- *CAD/CAM as Mediator Between Conception and Production*, School of Architecture, Cambridge University, England, November 1991.
- *Gaudí and the Hidden Years*, Mimar Sinan University, Istanbul, Turkey, November 1993.
- *Estereometria en La Sagrada Família y el Uso del Ordenador*, Centro de Estudios Gaudinistas, Col·legi D'Arquitectes de Catalunya i Balears, September 1994 (invited speaker to the International Conference of Gaudí Studies).
- *Best-fit Solutions to Loose-fit Surface Representation*, Invited audience: Arup and Associates, Architects and Engineers, London, July 1995.

- *Is Parametric Design a Design Paradigm?*, Invited audience: Frank O Gehry and Associates, Los Angeles, August 1995.
- *Between Surface and Substance: The Meaning Behind Gaudí's Surface Description*, University of Kyoto, Japan, November 1995.
- *Gaudí*, Copenhagen Royal School of Architecture, Denmark 1996.
- *Gaudí and Ruled Surface Geometry*, Budapest College of Architects, Hungary 1997.
- *Contemporary Issues in Completing the Sagrada Família Church*, National Museum of History, Taiwan 1998.
- *Gaudí and the Sagrada Família Church*, GhK 1998.
- *Gaudí*, Manipal School of Architecture, Mangalore, 1998.
- *Learning from Gaudí: Design and Construction*, ARUP, London, November 1999.
- *Architecture and Geometry*: (keynote), Cambridge University, November 1999.
- *After Gaudí*, Mackintosh School of Art, Glasgow, April 2000.
- *Gaudí i l'ambient de CAD*, UPC Barcelona, April 2000.
- *Arquitectura, Matemática, y la Geometría*, University of the Basque Country, May 2000.
- *Gaudí Computer - Computing Gaudí*, Inaugural address to the Jornades Gaudinistes (International Gaudí conference), TU Delft, November 2000.
- *Après Gaudí*, Ecole Especial d'Architecture, Paris, 2000.
- *Doppo Gaudí*, Milan Polytechnic (via 3x ISDN hook-up from HKPU), November 2000.
- *Liquid Stone*, Animation Conference, Barcelona, Spain, June 2003.
- Non Standard Architecture Exhibition, Centre Pompidou, Paris, invited speaker at opening conference, December 2003.
- 1:1 Seduction Symposium, Queensland University of Technology: Invited speaker, March 2004.
- *The Blob and Gaudí*, (Berlage Institute, hosted by Barcelona University) April 2004.
- Address to Department of Innovation, Industry and Regional Development Design Seminar, June 2004.
- *Paramorph and Gaudí's Sagrada Família*, Gehry Technologies Architecture and Digital Integration Symposium, London, September 2004.
- *Hybrid Activity: combining traditional and digital practice*. Address to Building Centre Trust, London, September 2004.
- *After Gaudí*. Invited lecture to architecture students, University of Liverpool, September 2004.
- Invited lecture, Knowlton School of Architecture, Ohio State University, 27 April 2005.
- *Antoni Gaudí and the Status of his Drawings and Models*, invited lecture, Architectural Association School of Architecture, London, January 2006.
- *What is digital architecture?*, invited lecture Simon Fraser University, Vancouver, Canada, March 2006.
- Invited seminar, Department of Architecture, University of Manitoba, Winnipeg, Canada, March 2006.
- Invited seminar, Faculty of Environmental Design, University of Calgary, Canada, March 2006.
- *What is digital architecture?*, invited lecture, School of Architecture, The Bartlett, London, UK, March 2006.
- *Gaudí and a fourth dimension through implied animation*. Antoni Gaudí Architecture and Art Exhibition, National Dr. Sun Yat-sen Memorial Hall Taipei, 16 September 2006.
- *The New Studio*, RMIT School of Architecture and Design Alumni event, Pertubuhan Akitek Malaysia (PAM), Kuala Lumpur, October 2006.

- ***Innovation in Architecture: The Sagrada Família Case*** at the 10<sup>th</sup> European PLM Forum, IBM and Dassault Systèmes, Paris, 9 November 2006.
- Invited lecture, University of East London, 8 October 2007.
- Distinguished lecture, Gaudí Unseen exhibition, Deutschesarchitekturmuseum (DAM), Frankfurt, Germany, 21 November 2007.
- Invited speaker, Parametrics/CADCAM Symposium, Royal Academy of Fine Arts, Copenhagen, 23 November 2007.
- Invited speaker, MIT Architecture lecture Series, Boston, 6 February 2008.
- Tours of Sagrada Família, architecture students, University of Westminster, UK and University of Virginia, USA, February 2004; AA (London) December 2004; LEAF Forum September 2005; Professor John Frazer and party; Gehry Technologies, September 2005; Professor Neil Leach Bartlett, UK, Architecture studio, October 2006; Arup UK April 2007; Bartlett February 2008; University of Stuttgart, February 2008.
- Distinguished lecture, Gaudí Unseen exhibition, Deutsche Werkstätten Hellerau GmbH, Dresden, 9 April 2008.
- Address to *Textile Tectonics*, symposium to be held at the College of Architecture, Georgia Institute of Technology, Atlanta, USA, 8 November 2008.
- ***Architects, engineers and the 3D model***, School of Architecture, University of Stuttgart, Germany, 11 November 2008.
- ***Gaudí and the Sagrada Família: new challenges for architects and engineers in the 21<sup>st</sup> Century***, School of Architecture, University of Kassel, Germany, 12 November 2008.
- Distinguished lecture, Gaudí Unseen exhibition, Arkitekturmuseet Skeppsholmen, Stockholm, 27 November 2008.
- ***Barcelona: Creative City Precincts***, School of Architecture and Design, Victoria University Wellington, New Zealand, 29 October 2009
- **Opening workshop at ARUP Design School**, Singapore 20 November 2009
  
- Architect-Guide in Barcelona 1980-1992 for a total of 15 groups of international study-tour architects and designers.
- Tour of Sagrada Família and Barcelona – Victorian Minister for Education and party, June 2003

#### National (Australia and New Zealand)

- ***A Price on Art: Patronage and Architecture***, Wellington City Art Gallery, Wellington, NZ March 1992
- ***Some Reasons for Continuing the Sagrada Família***, Academy for Fine Arts, Wellington, NZ May 1992
- ***The Sagrada Família in Context with Gaudí's Other Projects***, Victoria University Continuing Education, Wellington, NZ, April 1993
- ***Artificial Stone and its use at the Temple Sagrada Família***, Cement and Concrete Association, Christchurch NZ, August 1993
- ***Spanish Architecture and Landscape***, Victoria University Continuing Education, Wellington, NZ, April 1994
- ***The Catalan Renaissance 1850-1900***, Academy for Fine Arts, Wellington, NZ July 1994
- ***The Catalan Modernisme and its Legacy 1900-1936***, Academy for Fine Arts, Wellington, NZ August 1994
- ***Recent Developments at the Sagrada Família Church***, Architectural Centre, Wellington, August 1995
- ***Must Masonry be Boring?*** Invited address to New Zealand Concrete Masonry

- Manufacturer's AGM, Wellington, September 1995
- ***A Link Between Free-form Design and the Buildable***, Auckland Architectural Association, October 1995
  - ***Gaudí***, ADFAS, Geelong 1998
  - ***The Sagrada Família in Context with Gaudí's Other Projects***, Melbourne University 1999
  - ***Gaudí***, ADFAS, Melbourne (South Yarra) 2000
  - ***Gaudí***, ADFAS, Week-long tour NSW March 2001
  - Lecture to the New Zealand Institute of Architectures (Wellington Chapter) for NZ Architecture week
  - Lecture to the Catalan Club of Victoria, June 2002
  - ***Interaction Design and Design Interaction***, OZeCulture conference July 2003
  - OzCHI conference, University of Queensland, November 2003
  - ***Interface between Researchers in University and Practice***, AASA, University of Melbourne, September 2003
  - ***Antoni Gaudí's Computational Legacy***. Keynote address at Human-Centric Computing Languages and Environments (Auckland University) October 2003
  - Keynote address UNITECH, Auckland to Graduate conference, November 2003
  - What do we mean by Design? Panel member at University of Queensland symposium 28th November 2003
  - Address to Annual General meeting of Art Education Victoria, November 2003
  - Presentation to Design Innovation and the National Economy Forum, Melbourne Museum, November 2003
  - ***After Gaudí: post digital collaboration***, Creating the Collaborative Advantage Symposium, Box Hill TAFE: Keynote, July 2004
  - ***Authorship***, States of Mind Evolution Conference, University of Tasmania: Keynote, July 2004
  - ***'Convergent Design'***, FUTUREGROUND conference, Monash University: Keynote. November 2004
  - ***'Convergent Design'***, Arup, November 2004.
  - Keynote session – Technology – Exchange 2005, Royal Australian Institute of Architects (RAIA) National Conference, April 2005.
  - SIAL Research at RMIT's Design and Social Context Portfolio workshop, Recognising and Assessing University Research, December 2004.
  - Keynote session – Technology – Exchange 2005, RAIA National Conference, April 2005.
  - ***'After Gaudí'***, School of Architecture, University of New South Wales. To coincide with exhibition *Frantic – Digital Design and the Third Window*. 15 April 2005.
  - ***'Architecture of Concurrent Engineering'*** (with Richard Hough, ARUP) for RAIA Sydney Chapter Autumn Series, 16 May 2006.
  - Robertson Memorial Lecture, Curtin University, Western Australia, 12 October 2006.
  - Invited lecture at Generative Components Workshop, Bentley Systems, Melbourne, 23 October 2006.
  - Invited address, CHASS Workshop, 27 February 2007.
  - ***'That's Not Research! Architecture and the Academy'***. Invited address, Archivision 2007, RAIA National Conference, April 2007.
  - Invited presentation RAIA National Conference, *National Tour; Cross-Over Package*, April 2007.
  - ***'Morpho what?'*** Keynote presentation at CtrlShift07, Biennial Pacific Students of Architecture Congress, Wellington, New Zealand, 1-6 July 2007.

- *'That difficult nexus: creating a meaningful relationship between design education, research and practice'*, ConnectED International Conference on Design Education, Sydney July 2007.
- Invited speaker, CHASS National symposium for the Directors of University-based Centres of Research, 3 September 2007.
- Address to The Churchill Club, 15 May 2008.
- *Design, and the pivotal role of the newly formed Research Institute*, Presentation to RMIT Founders Dinner, 12 June 2008.
- *Design education and industry: enriching the nexus*, within the convergent World Forum of the State of Design *Design Capital Conference*, Melbourne Museum from 16-18 July 2008
- *Untangling the Mysteries: Temple Sagrada Família*, Australian Institute of Architects NSW Country Division 2008 Annual Conference, 9 October 2008.
- *Failure*, Public lecture, University of Technology Sydney, 9 October 2008.
- Invited address to CHASS Research and Policy Dialogue, 1 June 2009, National Press Club, Canberra.
- *Gaudí Unseen - Completing the Sagrada Família* as part of the National Gallery of Victoria Melbourne Winter Masterpieces exhibition *Salvador Dalí Liquid Design*, 18 June, 2009 Clemenger BBDO Auditorium NGV International, Melbourne.
- *Design and Platform Technologies*, Platform Technologies Research Institute Symposium. at RMIT University, Melbourne, 14 July 2009
- Presentation on current work to Grimshaw Jackson Architects, Melbourne, August 2005.
- Presentation on current work to Terroir Architects, Sydney, August, 2005.
- Presentations to practices from time to time showing the connection between research and learning at Deakin University School of Architecture and Building and RMIT University School of Architecture and Design (SIAL studios).
- After Dark - Brief presentation on the future of Architecture - As part of State of Design Festival 16 July 2009
- State of Design - Extremes Studio Review at RMIT University, 18 July 2009
- Design Lab: PLASTIC FUTURES at RMIT University, 18 July 2009
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## EXHIBITIONS

- Member of the Scientific Committee for **La Reserca de la Forma** exhibition, El Tinell, Barcelona, May-September, 2002
- Architectural illustrations included in *Claude Parent: an Oblique Lineage*, drawings and models by architects and artists, West Los Angeles January 2000.
- Co-curator of *Drawn Together: Enric Miralles and Leon van den Eijkel*, New Work Studio, Wellington, March 1994
- Co-curator of *Translations*, Exhibition of working drawings for projects by Gehry, Morphosis, Eric Owen Moss, F.D. Israel, Miralles, Gaudí, Jahn, Stirling, Jiricna, Hopkins and Piano, Victoria University Schools of Architecture and Design, August - September 1995
- Initiator and organiser of new annual Victoria University School of Architecture exhibition in civic location 1989-91
- 'Beyond Media – Spot on Schools', 7<sup>th</sup> International Festival for Architecture in video, Florence, Italy, October 2003 (with University of Auckland)
- Curator of SIAL contribution to Non Standard Architectures exhibition (collaboration with dECOi Architects, Paris and Tom Kovac, Melbourne), Paris, December 2003
- Curator 'Melbourne Hotspots' and 'Brain Cells' exhibitions at the inaugural Beijing

- Architecture Biennale, September-October 2004
- Digital Fabricators Exhibition, London, UK (June) and Waterloo, Canada (November) 2004
- 'Out of Mind into Sight', lab.3000 Digital Design Biennale, Melbourne Museum, November 2004 – March 2005.
- ARC Discovery grant Spatial Knowledge and the Built Environment: The Design Implications of Making, Processing and digitally Prototyping Architectural Models. Homo Faber Exhibition, Melbourne Museum, 1 June – 2 July 2006.
- Antoni Gaudí Architecture and Art Exhibition, Curator: Yu-Tung Liu), National Dr. Sun Yat-sen Memorial Hall Taipei, Taiwan, 22 July – 10 September 2006.
- The Clerestory Window for Antoni Gaudí's Sagrada Família Church, Barcelona Spain, at the NewDowse Museum, Lower Hutt, New Zealand, February – August 2007.
- ARC Discovery grant Spatial Knowledge and the Built Environment: The Design Implications of Making, Processing and digitally Prototyping Architectural Models. Homo Faber Exhibition, Melbourne Museum, 9 August – 16 September 2007.
- Gaudí Unseen exhibition and catalogue, Deutschesarchitekturmuseum, Frankfurt, Germany, September 2007– February 2008.
- Digital Project. Frank Gehry's Vision, Danish Architecture Centre, Copenhagen, Denmark, 9 March – 20 May 2007.
- Gaudí Unseen exhibition and catalogue, Deutsche Werkstätten Hellerau GmbH, Dresden, Germany, 28 February – 30 May 2008.
- ARC Discovery grant Spatial Knowledge and the Built Environment: The Design Implications of Making, Processing and digitally Prototyping Architectural Models. Modelling, Identity and the Post Digital Exhibition, Melbourne Museum, 15 August – 14 September 2008.
- Venice Biennale (models displayed in Australian Pavilion), 11<sup>th</sup> International Architecture Exhibition 'Out There. Architecture Beyond Building' at La Biennale de Venezia, Italy, 14 September – 23 November 2008.
- Gaudí Unseen exhibition and catalogue, Arkitekturmuseet Skeppsholmen, Stockholm, Sweden, 2 October 2008 – 6 January 2009.
- Beijing Biennale (SIAL project work), 3<sup>rd</sup> Beijing Architecture Biennial ABB2008 '(Im)material Processes: New Digital Techniques for Architecture', an international exhibition of student work, to be held in Beijing from 24 October – 2 November 2008.

## MEDIA

### Newspapers

- Evening Post, Wellington January 1992: full page colour article around my work in Barcelona
- Christchurch Press, August 1992: reworked version of Evening Post piece
- La Vanguardia, January 1993, (Spanish National Sunday edition): Half page article on the Catalonia - New Zealand connection with the Sagrada Família project
- Melbourne Age, April 1994 (Saturday main paper and Weekend magazine cover story): Catalonia - Australasian connection with the Sagrada Família project
- Sydney Herald, April 1994 (Saturday main paper and Weekend magazine cover story): Catalonia - Australasian connection with the Sagrada Família
- The Press Office at the Universitat Politècnica de Catalunya has a cuttings file that contains dozens of articles from various sources where the triangular relationship between the UPC, TSF and VUW/Deakin University is discussed.
- Melbourne Age, 1998: Feature article
- The Australian, 1998: Feature article
- Geelong Business News, 2000
- The Age Domain, 4 February 2004

- The Chronicle of Higher Education, USA, 9 April 2004
- Otago Daily Times, Dunedin, New Zealand, 14 August 2004
- Architecture Bulletin, Sept/October issue 2004
- Australian Architectural Review Digital Special, October 2004
- The Age and Sun Herald – Sunday Magazine (forthcoming)
- Financial Review October Design issue, November 2004
- The Australian (article on Sagrada Família) 29 October 2004
- Mercedes Magazine Australia, Summer 2004/2005
- The Age Domain, 8, 15 and 22 September 2004.
- Urbis New Zealand, May 2005
- Catalonia Today, January 2006
- The Age and Sydney Morning Herald, Good Weekend Design and Technology issue 17 June 2006.

## Television

- TVNZ (Arts Programme - prelude to opening of the Olympic Games), August 1992: Half hour documentary interview
- Beyond 2000, Late 1994 / early 1995: 'main story' on Catalonia - Australasian connection for the Sagrada Família project
- Hessen Television, Germany: 11 minute documentary 1998 (leading to a proposed 30 minute documentary on the Sagrada Família Church in 2000)
- TVNZ Sunday programme on Mark Burry at the Temple Sagrada Família 2003
- ABC Foreign Correspondent reshoot of TVNZ production 2003
- ABC TV George Negus tonight, 19 April 2004
- 'In conversation with Mark Burry' ABC TV Sunday Afternoon program 25 July 2004
- TV NZ Breakfast News, October 2005
- TV NZ National Prime Time News, October 2005

## Radio

- Radio New Zealand, January 1992: Morning Report interview
- Radio New Zealand, Concert Programme, April 1992: half hour interview to coincide with public lecture
- Radio New Zealand, February 1993: morning interview with Sharon Crosby
- Radio New Zealand, February 1996: evening interview with Linda Rose
- Interview on 'Arts Today', August 1999, National Radio
- Interview on ABC Radio National, May 2000, The Comfort Zone with Alan Saunders
- Radio National Tasmania (Radio 1), June 2000, morning interview with Rick Pattison
- ABC Radio National, June 2000, morning interview with Shaun Hore.
- Interview on ABC Radio National, December 2000, The Comfort Zone with Alan Saunders
- Appearance on 'Hypotheticals', ABC Radio National August 2001, The Comfort Zone with Alan Saunders and others
- Interview with Ben Knight, "Gaudí turns 150" PM program- Tuesday, June 25, 2002 6:56
- Interview on National Radio New Zealand (30 minutes in length): Saturday October 5<sup>th</sup> 2002
- Interview with SBS Radio (in Spanish), November 2002

- Interview with ABC Radio for 150<sup>th</sup> year of Gaudí's birth, 25 June 2002
- ABC Radio interview on The Deep End, February 2004
- Radio interview Trip R '02.7FM, Melbourne, 'the Architects' program, August 2005.
- Radio interview, BBC Radio 4, Barcelona, September 2005
- NZ National Radio with Maggie Barrie, October 2005

### **Film**

- ***Liquid Stone: Unlocking Gaudí's Secrets***, produced by Circe Films Pty Ltd. Australian Premiere screening ACMI, Melbourne, 17 June 2009.

## **PREVIOUS EMPLOYMENT (ACADEMIC)**

Professor (Chair in Architecture and Building) June 1996 – July 2001

School of Architecture and Building

Deakin University

Waterfront Campus

Geelong,

Victoria 3217

Australia

Telephone: + 61 3 52 298 326

Fax: + 61 3 52 278 341

Web site was: <http://www.ab.deakin.edu.au/staff/mburry>

### **Senior Lecturer with tenure: February 1989 – June 1996**

School of Architecture

Victoria University of Wellington

PO Box 600, Wellington, New Zealand.

## **PREVIOUS EMPLOYMENT (PROFESSIONAL)**

### **Registered Architect in Scotland: 1983 - 89**

Western Isles Islands Council, Western Isles of Scotland

Employed in Benbecula Office, Southern Isles. The Western Isles Islands Council had been established in 1975 to manage the Islands' affairs. Substantial sums were made available from both Central Government and the EEC to provide the facilities that the community had hitherto been deprived.

Collaboration in design team (3 architects and 2 technicians)

- Linclate Community School, Isle of Benbecula (1983-88): £12 million contract for a secondary school for a community that had previously sent its children to the mainland for their secondary education. The project included state-of-the-art services for extreme climatic conditions including an aero generator. (RIBA Commendation 1990)

Sole design responsibility and contract administration: (Project Architect):

- 9 housing and housing rehabilitation projects
- Rehabilitation of warehouse into pier, offices, ticket sales & waiting rooms
- Fishermen's store, public toilets & waiting rooms
- Water treatment works
- 2 covered stock auction marts
- Commercial development: feasibility study for mixed use and housing
- Conversion of former secondary school into primary school

- Special needs housing
- 30 houses and total house renovations (private practice)
- Hotel refurbishment and light industrial (private practice)

### **Graduate Architect 1982-83**

Cambridge Design, Cambridge England

Participant in 3person design & documentation team for International Language School 'Eurocentre' (RIBA Commendation 1988)

Consultancy with partner for Italian Government project conducting research into post disaster temporary accommodation.

### **Assistant Architect 1979-80**

Temple Expiatori de la Sagrada Família

Site Architect with a twelve-month scholarship from the Construction Committee. Duties included studying the surviving fragments of Gaudí's model of the nave, interpreting them in order to produce working drawings. Work was supervised by the two surviving 'Gaudí Disciples', Sr Puig Boada and Sr Bonet Garí.

Six months part-time employment with: MBM (Martorell, Bohigas & MacKay), Barcelona, Spain

### **Other relevant experience**

Partner in small design and build company from 1980 – 1983 where the ratio of building work to design and management was approximately 3:2

## APPENDIX

### PROFESSIONAL AND CREATIVE INTERESTS

My professional, research and teaching focus is on innovative stratagems that allow 'difficult' architecture to be realised at the urban scale and at the scale of detailed design. I am fascinated by architecture as a creative discourse, the translation of the ideas of individuals to buildings requiring the cooperation of large and diverse teams, and I am fascinated by architecture as a manifestation of culture and human endeavour.

### RESEARCH INTERESTS

#### Pure Research:

- The Life and Times of Antoni Gaudí
- Gaudí: reconciliation between idea and artefact (PhD)
- Computer aided decision support: implications for design and construction
- CAAD and the implications for construction representation and management
- UK, Australia and New Zealand Building language and components

#### Applied Research:

##### *Antoni Gaudí and the Sagrada Família Church*

Antoni Gaudí's long career extended from 1878 through to 1926. During this time he produced relatively few buildings but all, without exception, are extraordinary works of architecture. One project, the Sagrada Família Church, occupied him during virtually all his working life. At the time of his death, however, only the apse and one transept were completed. Work has continued and today, 118 years from laying the foundation stone, the building is still less than 50% complete.

Considering the Sagrada Família Church in detail and comparing it with his other projects is very revealing: there are marked differences in his approach to composition for the later stages of his design compared with his previous work. Gaudí left complex geometrical models of the nave to aid its completion after his death. I have worked on the interpretation of these models since 1979. Is there a 'real' Gaudí, and if so which phase of his career is the most representative? Scholars are not inclined to share a common view.

Other than the Coordinating Director, I am the architect currently working in the team with the longest association with the project. I have coordinated the design interpretation and implementation for much of the nave including the roof and have been commissioned recently to interpret Gaudí's design drawing for the Passion Façade.

My investigations have helped place the Sagrada Família in the context of Gaudí's other work and informs my other collaboration such as that with dECOi architects in Paris. Beyond the polemical arguments regarding its continuation, it is only now that somewhat esoteric building representation and construction techniques can be shown to have a value beyond the Gaudí arena. Both in terms of representation and construction, Gaudí left a legacy of challenges that even 21<sup>st</sup> Century technology has difficulty in fulfilling. This aspect now enjoys intense interest internationally witnessed by special visits from key personnel from F O Gehry's office in recent years.

##### *Australian and New Zealand Construction Primer*

Computer-aided Design Decision Support: Interfacing Knowledge and Information

Computer-aided design decision support has proved to be an elusive and intangible project for many researchers as they seek to encapsulate information and knowledge-based systems as useful multifunctional data-structures. Definitions of 'knowledge', 'information', 'facts', and 'data' become semantic footballs in the struggle to identify what designers actually do, and what level of support would suit them best, and how that support might be offered.

The Construction Primer is a database-driven interactive multimedia environment that provides readily updated access to many levels of information aimed to suit students and practitioners alike. This is hardly a novelty in itself. The innovative interface and metadata structures, however,

combine with the willingness of national building control legislators, standards authorities, materials producers, building research organisations, and specification services to make the Construction Primer a versatile design decision support vehicle. It is both compatible with most working methodologies while remaining reasonably future-proof. The structure of the project highlights the importance of sound planning and strict adherence to library-standard metadata protocols as a means to avoid the support becoming too specific or too paradigmatic.

### ***Espai Gaudí: Interactive multimedia***

Collaboration between the Universitat Politecnica de Catalunya (20%) and Deakin University (80%) to produce an interactive CD ROM (for the l'Espai Gaudí with support from the Temple Sagrada Família archives).

In November 1998 we were invited to submit a proposal to produce an interactive multimedia CD ROM for the *Espai Gaudí* – the principal Gaudí museum based in Gaudí's *La Pedrera* building and visited by 750,000 people annually. At that time the scope of the project was not clear but the subject was agreed as being a visual description of the origins of the geometry used by Gaudí at the Sagrada Família Church and the way they were applied to assist the building process. It is envisaged that the production would complement a separate production commissioned from professional CD ROM publishers who will describe Gaudí's work from a broader perspective. The decision to offer the work to the School of Architecture and Building was based on the successful methodology of our *Construction Primer* project. It is highly significant that Deakin will be doing the lion's share of the research and development: the Museum's sponsors are the Caixa Catalunya, Barcelona's premier cultural funding institution pledged to further the advancement of Catalan art and culture.

At its simplest, the CD ROM could be no more than a compilation of still and video images from the various archives and from construction on site today. We wish to take the project a little further, however, and have developed the project to the level of sophistication achieved in our earlier animation work for the description of Gaudí's column produced in 1997 in collaboration with Victoria University of Wellington.

This is a research project addressing a single question:

*'How do you show and explain art through art and not words, and to a wide audience, and transcending many cultures?'*

The work is in six sections ranging from design ideas to construction processes. The multimedia preparation tasks range from assembling a series of historic images along a visual timeline to preparing sophisticated frame-by-frame animated descriptions of the various geometrical approaches to the design.

The project is based 'within' a browser interface and will make extensive use of Macromedia compilation software.

### **Mediating between design and construction processes through *parametric design* principles**

Although parametric design (also known as 'associative geometry') has been available commercially for at least a decade, it is not used in the typical architect's office. It is expensive and requires high-end computers; a typical installation could approach \$US100,000 for software and hardware placing it beyond the reach of most architects. Parametric design software has been developed principally for mechanical engineers, civil engineers, industrial designers and for the transport industry all of whom make good use of products that allow the 'whole' to be resolved into a large number of associated and adaptable parts. My work in the area has been applied successfully to the Sagrada Família Church and more recently to design collaboration with dECOi in Paris.

## MAJOR GRANTS

### **ARC LIEF Grant ‘Advanced Computational Modelling Infrastructure Network in Built Environment’ (with University of Melbourne and Deakin University, 2007**

c. \$170

This project between the three schools of architecture in Victoria will develop a shared computational modelling infrastructure for acquisition and sharing of 3D modelling data for use in advanced research in built environment disciplines in Victoria. The proposed infrastructure will make possible shared access to innovative components including: (a) a large capacity 3D and multimedia data and content management server with client nodes, (b) a high definition laser scanning toolkit for acquisition of 3D survey data of existing buildings, (c) a stereoscopic enhancement of the existing large-format projection environment for visualisation of 3D data, and (d) a digital printer to rapid-prototype and “print” analog 3D models from digital data.

### **Australian Research Council Federation Fellowship ‘Complex and Convergent Design’ 2006 – 2011**

c. \$1,581,110

The Federation Fellowship is designed to provide me with the quality time, resources and access to an established research team to allow me to document the lessons learned from 26 years of working posthumously with Gaudí on completing his Sagrada Família Church during a time of unprecedented change in architectural practice. My proposal has the twin goals of four book projects to consolidate architectural scholarship on the transition from traditional to digitally assisted architectural design and practice and, secondly, to extend my work by pushing architectural, manufacturing and building technology transfer and innovation in new directions, accelerating its impact in the field.

### **ARC Linkage Grant ‘Delivering Digital Architecture in Australia’, 2006 - 2008**

c. \$234,000

Design, documentation, and off site prefabrication of numerous recent major international architectural projects, were achieved with evolving integrated 3D digital methods. While Australian architects, engineers, manufacturers, fabricators, and constructors have participated in a few such projects using these technologies, generally, local understanding and uptake of the opportunities is still very low. Growth in this area means growth in an existing export rather than increasing reliance on importing these services and products. More fundamentally, it means a huge cultural dividend to Australia from greater affordable freedom of architectural expression.

### **ARC Discovery Grant ‘Acts of electronic negotiation: Overcoming communication barriers to transdisciplinary innovation in design’, 2006 - 2008**

c. \$435,000

Improved collaboration between the diverse contributors to design in the construction industry is urgently needed to reduce waste, streamline production and improve performance. It is also a key to better and more advanced design. The quality of human to human interaction in computer mediated environments is critical to the occurrence of innovation between design disciplines. This project will create a pool of highly qualified personnel in this area in Australia, including participating designers introduced to novel empowering approaches to network communication. It will develop and apply knowledge from other disciplines to developing tools for the design community.

**Australian Research Council (Linkage) 2005 – 2007**

***Architectural Research Embedded within Practice: The Creation of a Shared Practice-Based Architectural Research and Development Network.***

c. \$483,204

There are three aims to this Linkage research project.

The first is to form a cohort of four postgraduate students, each embedded in one of the Industry Partner architectural practices where, through daily contact with one or more projects, the practices will be able to afford to be more speculative in the way they undertake certain tasks which range between ideation, conceptualisation, design development, design realisation, post-occupancy evaluation and facilities management.

The second aim is to initiate a forum composed of key members of each of the participating practices from which new dialogues will emerge, leading to new areas of research and development that will help ensure that Australian architectural design and its role in the construction industry maintains its competitive position in the world market.

The third aim is to encourage a formal 3-way dialogue through research-based cooperation between the University, the cohort of postgraduates and the participating practices to form a conspicuous vanguard team to influence national change in the construction design industry.

**Australian Research Council (Discovery) 2005 – 2007**

***Spatial Knowledge and the Built Environment: The Design Implications of Making, Processing and Digitally Prototyping Architectural Models.***

c. \$248,797

“The built environment represents a significant financial, cultural and social investment in Australia’s future and its success depends on the process of architectural design. The architectural model is the primary design tool that predicts how the built environment will function when it is constructed. Traditionally the model was made by hand and the design refined through this process. However, increasingly architectural models are now visualised in 3D by computers and manufactured by computer controlled machines. This research project undertakes the first detailed analysis of the impact of the digital making/manufacturing process for architectural models on the design process.

**Australian Research Council (Discovery) 2002 -2004:**

***Ontology-based collaboration in design***

c. \$245,000

“The design process of a building project establishes function, form and performance for the final building. When multiple participants from varying professions are involved there is a serious problem in coordinating, communicating, and locating information around each design decision. Establishing an ontology for this process, and using this ontology to structure all participant communication, will allow the requisite information from all participants to be considered for each design decision. This will greatly reduce rework and poor design decisions based on missed information. It will also ensure that participants are aware of all related information for their particular design tasks”.

**Australian Research Council (‘SPIRT’) 2001-2003:**

New onto old: flexible 3D computer modelling to aid heritage building restoration, recycling and extension

**\$66,000**

“When architects work with existing buildings assumptions need to be made when accurate measurement is impossible through constrained access, and where construction information is hidden within the building fabric. In these situations architects might benefit from interactive (rather than static) computer-aided design models.

Three-dimensional models are becoming more routine in practice, but their innate precision is in opposition to the ‘loose knowledge’ implicit with recycled building stock. The aims of this research is to apply and evaluate flexible modelling techniques (parametric design) developed by the research team to a case study of international importance: the continuing construction of the Sagrada Família Church in Barcelona. This work will be in conjunction with a 2000-2002 Large ARC

funded project: Investigation into Antoni Gaudí's Final Design Models for the Sagrada Família Church

The research team will comprise Professor Mark Burry, a practicing architect and academic, whose research and consulting work involves computers for design in internationally acclaimed collaborative projects. Mr. Sambit Datta, an early career researcher whose research is focussed on electronic design media for collaborating teams will provide design programming support. They will be working closely with Professor Josep Gòmez Serrano from the School of Architecture at the Universitat Politècnica de Catalunya. The application of the research will be led by Jordi Bonet, Architect Co-ordinator and Director of the Sagrada Família Church”.

**Large ARC 2000- 2002:**

***Investigation into Antoni Gaudí's Final Design Models for the Sagrada Família Church***

c. \$76,000

“This project will create a new scholarly understanding of the Sagrada Família Church in Barcelona, the greatest work of the architect Antoni Gaudí, a major building in the history of architecture and a building that remains under construction today. It will do this by adapting a computer-aided design technique known as parametric design to create designs that are consistent with all of the available historical information on the church. A practical outcome is that the project results will be used to specify how the Church will actually be completed, thus making the church itself a statement of Gaudí's design intent”.

**CUTSD Organisational 2000-01 (shared with Adelaide University):**

c. \$150,000

“Good, mature designers engage a continuous cycle of self-criticism and creation that produces both learning and improved work—this is widely known in the field as reflection-in-action. It is mostly a learned behaviour—beginning students tend to cut it short.

If recent national and international design awards are any indication, society places considerable value on architects who have profound knowledge of building construction and how it can be used to augment an architectural idea. Developed practitioners of design making can relate the distinct domains of architectural ideas and a constructed reality. Beginning students and other laypersons have particular difficulty with such discourse between a world of ideas and a world of physical form.

In the built environment professions, sound skill in, deep knowledge of, and an ability to continue to learn about computing in design are highly valued. Graduates who can use and extend their skill and knowledge in innovative ways are given opportunities for especially exciting and fulfilling work. Worldwide, undergraduate schools of architecture produce few such people.

This project will address each of these three concerns by immersing beginning students in an environment that models and encourages reflection-in-action, design making and innovative computing”.

**Ian Potter Foundation (shared with Adelaide and Queensland Universities):**

c. \$120,000

“A national digital archive of architectural images to include historical and construction material. The grant (with matching funding from the three universities) will be used to develop the database protocols to allow the seamless management and sharing of digital material from distributed repositories. The project anticipates the benefits of wider bandwidths and innovative measures to counter continuing problems with copyright issues. The project also anticipates wider sharing of learning material in schools of architecture and building worldwide”.